

CLAIMS

What is claimed is:

1. A system for monitoring the integrity of a plurality of endpoints and a communication channel between the plurality of endpoints and a gateway device, comprising:

an endpoint having a monitoring application for monitoring the integrity of the endpoint, the monitoring application at a predetermined time sending a periodic signal through a communication channel to the gateway device indicating the integrity of the endpoint;

a server having a centralized database listing the status of the endpoint; and

a gateway device in communication with the server and with the endpoint, the gateway device including a monitored list listing the status of the endpoint in communication with the gateway device, the gateway device being capable of selectively sending a state change message to the server if the gateway device fails to receive a periodic signal from the endpoint and if the status of the endpoint is either in a Healthy state, which indicates the endpoint is functioning properly, or a Trouble state, which indicates the endpoint has failed once, the gateway device further being capable of not sending the state change message to the server upon a failure to receive the periodic signal from the endpoint if the status of the endpoint is in a Removed state, which indicates the endpoint has been removed from the monitored list.

2. The system of claim 1, wherein the periodic signal is sent through a data channel connecting the endpoint and the gateway.

3. The system of claim 1, wherein the status of the endpoint is set to the Trouble state when the gateway device fails to receive the periodic signal from the endpoint and the status of the endpoint is in the Healthy state.

4. The system of claim 1, wherein the status of the endpoint is set to the Removed state when the gateway device fails to receive the periodic signal from the endpoint and the status of the endpoint is in the Trouble state.

5. The system of claim 1, wherein the centralized database has a plurality of entries, each entry being associated with one endpoint, the status of the endpoint, and the gateway device associated with the endpoint.
6. The system of claim 1 further comprising a timer, wherein the timer is associated with the endpoint.
7. A method for monitoring the integrity of a endpoint and a data channel between the endpoint and a gateway device, comprising the steps of:
- determining the health of an endpoint;
 - if the endpoint is in a Healthy state, which indicates the endpoint is functioning properly, sending a periodic signal at a predetermined time through the data channel to the gateway device associated with the endpoint;
 - if the gateway device fails to receive a periodic signal from the endpoint and if the status of the endpoint in a monitored list in the gateway device is the Healthy state, setting the status of the endpoint in the monitored list to a Trouble state, which indicates the endpoint has failed once, and sending a state change signal to a server indicating the status of the endpoint has been set to the Trouble state; and
 - if the gateway device fails to receive a periodic signal from the endpoint and if the status of the endpoint in a monitored list in the gateway device is the Trouble state, setting the status of the endpoint in the monitored list to a Removed state, which indicates the endpoint has been removed from the monitored list, and sending a state change signal to the server indicating the status of the endpoint has been set to the Removed state.
8. The method of claim 7, further comprising the steps of:
- determining if a timer associated with the endpoint has expired;
 - if the timer has expired, determining the status of the endpoint associated with the timer;
 - if the status of the endpoint is the Healthy state, setting the status of the endpoint to the Trouble state;
 - if the status of the endpoint is the Trouble state, setting the status of the endpoint to the Removed state; and

resetting the timer.

9. The method of claim 7, further comprising the steps of:
receiving a configuration signal from the endpoint;
determining if the endpoint is listed in the monitored list; and
if the endpoint is not listed in the monitored list, adding the endpoint to the monitored list
and transmitting a configuration signal to the server.

10. A method for monitoring the integrity of a endpoint and a data channel between the
endpoint and a gateway device, comprising the steps of:
determining the status of an endpoint in a monitored list in the gate device;
if the status of the endpoint is either a Healthy state, which indicates the endpoint is
functioning properly, or a Trouble state, which indicates the endpoint has failed once, setting a
timer for an endpoint listed in a monitored list in the gateway device;
if the timer expires and the status of the endpoint in the monitored list is in the Healthy
state, setting the status of the endpoint to the Trouble state and sending a first state change
message to a server;
if the timer expires and the status of the endpoint in the monitored list is in the Trouble
state, setting the status of the endpoint to a Removed state, which indicates the endpoint has been
removed from the monitored list, and sending a second state change message to the server; and
resetting the timer if a periodic message is received from the endpoint.

11. A system for monitoring the integrity of a plurality of endpoints and a communication
channel between the plurality of endpoints and a gateway device, comprising:
an endpoint means having a monitoring means for monitoring the integrity of the
endpoint means, the monitoring means at a predetermined time sending a periodic signal through
a communication means to the gateway device indicating the integrity of the endpoint means;
a server means having a centralized database means listing the status of the endpoint
means; and
a gateway means in communication with the server means and with the endpoint means,
the gateway means including a monitored list listing the status of the endpoint means in

communication with the gateway means, the gateway means being capable of selectively sending a state change message to the server means if the gateway means fails to receive a periodic signal from the endpoint means and if the status of the endpoint means is either a Healthy state, which indicates the endpoint is functioning properly, or a Trouble state, which indicates the endpoint has failed once, the gateway means further capable of not sending the state change message to the server means upon a failure to receive the periodic signal from the endpoint means if the status of the endpoint means in the monitored list is a Removed state, which indicates the endpoint has been removed from the monitored list.